IN THE CLAIMS

1. (currently amended) A gateway apparatus which interconnects a first network and ~~a~~
~~second~~an IP network, comprising:

an encoding processing unit receiving voice data from the first network and generating

encoded voice data from the received voice data;

a packet processing unit creating IP packets of the encoded voice data from the encoding

processing unit and transmitting the IP packets to the ~~second~~IP network;

a network-state estimation unit determining network-state information of the ~~second~~IP

network based on IP packets that are received from a second gateway apparatus via the ~~second~~IP

network; and

a determination unit controlling, before the transmission of the IP packets, at least the

encoding of the voice data by the encoding processing unit based on the network-state

information determined by the network-state estimation unit,

_____ wherein the IP packets to be transmitted to the IP network are processed according to the

network-state information indicating only the state of the IP network, independently of network

state of other networks.

2. (currently amended) The gateway apparatus according to claim 1, wherein the

determination unit determines a type of the encoding that is performed by the encoding

processing unit, based on the network-state information of the ~~second~~IP network.

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3. (currently amended) The gateway apparatus according to claim 1, wherein the determination unit determines an option of non-voiced data compression or non-compression that is performed by the encoding processing unit, based on the network-state information of the ~~second~~IP network.

4. (currently amended) The gateway apparatus according to claim 1, wherein the determination unit controls the packetizing of the packet processing unit and determines a packet discarding priority level of the packet processing unit, based on the network-state information of the ~~second~~ IP network.

5. (currently amended) The gateway apparatus according to claim 1, wherein the determination unit controls the packetizing of the packet processing unit and determines a packet transmission priority level of the packet processing unit, based on the network-state information of the ~~second~~ IP network.

6. (currently amended) The gateway apparatus according to claim 1, wherein the network-state estimation unit determines a packet loss ratio based on the IP packets that are received from the second gateway apparatus via the ~~second~~ IP network, and sends the packet loss ratio to the determination unit.

7. (original) The gateway apparatus according to claim 6, wherein the determination unit stores at least one reference value of the packet loss ratio, and determines a specific one of a set

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of predetermined control parameter levels based on the result of comparison of said at least one reference value and the packet loss ratio received from the network-state estimation unit, the set of predetermined control parameter levels being inclusive of at least one of a set of packet discarding priority levels, a set of packet transmission priority levels, and a set of encoding type levels.

8. (currently amended) The gateway apparatus according to claim 1, wherein the network-state estimation unit determines a packet arrival time jitter based on the packets that are received from the second gateway apparatus via the second IP network, and sends the packet arrival time jitter to the determination unit.

9. (original) The gateway apparatus according to claim 8, wherein the determination unit stores at least one reference value of the packet arrival time jitter, and determines a specific one of a set of predetermined control parameter levels based on the result of comparison of said at least one reference value and the packet arrival time jitter received from the network-state estimation unit, the set of predetermined control parameter levels being inclusive of at least one of a set of packet discarding priority levels, a set of packet transmission priority levels, and a set of encoding type levels.

10. (currently amended) The gateway apparatus according to claim 1, wherein the network-state estimation unit reads a TTL value from a packet that is received from the second

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gateway apparatus via the ~~second~~ IP network at a start of communication, the network-state

estimation unit sending the TTL value to the determination unit.

11. (previously presented) The gateway apparatus according to claim 10, wherein the

determination unit stores at least one reference value of the TTL value, and determines a specific

one of a set of predetermined control parameter levels based on the result of comparison of said

at least one reference value and the TTL value received from the network-state estimation unit,

the set of predetermined control parameter levels being inclusive of at least one of a set of packet

discarding priority levels, a set of packet transmission priority levels, and a set of encoding type

levels.

12. (**currently amended**) The gateway apparatus according to claim 1, further

comprising a network-state storage unit storing the network-state information with respect to

each of a plurality of destination stations in the ~~second~~ IP network, wherein the determination

unit stores a reference value of one of a packet loss ratio and a packet arrival time jitter, and,

when a call connection between the gateway apparatus and one of the plurality of destination

stations is established, the determination unit determines a specific one of a set of predetermined

control parameter levels based on the result of comparison of the reference value and the

network-state information of said one of the plurality of destination stations read from the

network-state storage unit.

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13. (currently amended) The gateway apparatus according to claim 1, wherein the

network-state estimation unit transmits test voice data to the second gateway apparatus via the

second-IP network, receives test packets from the second gateway apparatus via the second-IP

network, and determines the network-state information, including an estimated network delay

and an estimated voice data quality level, based on the result of comparison of the test voice data

and the test packets.

14. (currently amended) The gateway apparatus according to claim 13, wherein the

network-state estimation unit compares a transmission time of the test voice data and a receiving

time of the test packets, and calculates an estimated network delay of the second-IP network

based on the result of the comparison of the transmission time and the receiving time.

15. (currently amended) The gateway apparatus according to claim 13, wherein the

network-state estimation unit determines at least one of a packet loss ratio and a packet arrival

time jitter of the second-IP network based on the received test packets.

16. (original) The gateway apparatus according to claim 13, wherein the encoding

processing unit receives the test voice data from the network-state estimation unit, and generates

pulse-code-modulation encoded voice data from the received test voice data.

17. (currently amended) A data transmission method which is performed by a gateway

apparatus including an encoding processing unit and a packet processing unit and

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interconnecting a first network and a~~second~~an IP network, the data transmission method

comprising the steps of:

causing the encoding processing unit to receive voice data from the first network and

generate encoded voice data from the received voice data;

causing the packet processing unit to create IP packets of the encoded voice data and

transmit the IP packets to the ~~second~~IP network;

determining network-state information of the ~~second~~IP network based on packets that are

received from a second gateway apparatus via the ~~second~~IP network; and

controlling, before the transmission of the IP packets, at least the encoding of the voice

data by the encoding processing unit based on the network-state information obtained in the

determining step,

<u>wherein the IP packets to be transmitted to the IP network are processed according to the</u>

<u>network-state information indicating only the state of the IP network, independently of network</u>

<u>state of other networks.</u>

18. (new) A communication apparatus comprising:

an encoding processing unit encoding voice data;

a packet processing unit creating packets through packetizing of the encoded voice data

from the encoding processing unit so that the packets are transmitted from the communication

apparatus to a second communication apparatus;

a quality level estimation unit determining a quality level based on packets which are

received from the second communication apparatus; and

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a determination unit controlling the encoding of voice data by the encoding processing

unit such that, when a congestion state is detected based on the quality level determined by the

quality level estimation unit, a CODEC type having a compression ratio higher than a

compression ratio of a CODEC type selected in a non-congestion state is selected for the

encoding of voice data by the encoding processing unit.

19. (new) A communication apparatus comprising:

an encoding processing unit encoding voice data;

a packet processing unit creating packets through packetizing of the encoded voice data

from the encoding processing unit so that the packets are transmitted from the communication

apparatus to a second communication apparatus;

a quality level estimation unit determining a quality level based on packets which are

received from the second communication apparatus; and

a determination unit controlling the encoding of voice data by the encoding processing

unit such that, when a congestion state is detected based on the quality level determined by the

quality level estimation unit, a type of service ToS value higher than a type of service ToS value

selected in a non-congestion state is selected for the encoding of voice data by the encoding

processing unit.

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